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Suite 473
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New York, NY 10017

EXAMINER

BERTHEAUD, PETER JOHN

ART UNIT	PAPER NUMBER
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3746

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,990	Applicant(s) MARK ET AL.	
	Examiner PETER J. BERTHEAUD	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-46 is/are pending in the application.
- 4a) Of the above claim(s) 42-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/7/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 24-41 in the reply filed on 1/28/2008 is acknowledged. Therefore, claims 42-46 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1/28/2008.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the in reference to claim 36, "in that the stop is of shell-shaped design" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 1 is objected to because of the following informalities: line 11 reads, "the expeller part (20)" this should be changed to --the expeller part (25)--. Appropriate correction is required.

4. Claim 38 is objected to because of the following informalities: line 2 reads, "whereub the wobble plate" this should be changed to --wherein the wobble plate --. Line 5 reads, "and is supported in a of the expeller part" this should be changed to --and is supported in the expeller part--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "the universal joint (33) can be moved in the center of the wobble plate (32) on a circular path about a central axis (27) of the

expeller part (25)" is indefinite due to its ambiguity. Lack of rejection over prior art does not indicate allowability.

7. Claim 37 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In line 3, Applicant refers to a "sliding element (55)". However, element 55 is repeatedly referred to as a support ring in the disclosure. Furthermore, in lines 6 and 7, the phrase "a joint whose position rotates with the wobble plate" is indefinite because the "joint", which couples the wobble plate to element 55, according to the claim, should rotate with the expeller part as stated in the disclosure on the last line of paragraph 73. Lack of rejection over prior art does not indicate allowability.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiryu 4,529,362 in view of Schaeffer 6,887,045.

Ichiryu discloses a servo pump for hydraulic systems comprising a housing 1 and having an expeller part 5 in which a plurality of expellers 6 which bound expeller spaces 5a with variable volumes are guided, a cam part 8 on which the expellers are supported, and having control means comprising a control cam 13 which has two kidney-shaped

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control slots 13a, 13b via which the expeller spaces 5a can be successively connected an actuator and an oil reservoir 16, wherein the control means can be controlled cyclically, in that a control cam 13 or the expeller part 5 can be driven in rotation by means of a drive 3, and in that of the two components comprising the expeller part 5 and cam part 8, one component 5 can move freely with respect to the other component (see col. 2, lines 7-14). Ichiryu further discloses axial pistons 6, which are located in the expeller part 5, and wherein the cam part 8 is a wobble plate which is mounted by means of a universal joint 9 with its center in the center of said wobble plate so as to be capable of pivoting on all sides (see col. 2, lines 14-17). However, Ichiryu does not teach the following claimed limitations taught by Schaeffer.

Schaeffer teaches a hydraulic transformer comprising an expeller part 28 in which a plurality of expellers 30 which bound expeller spaces with variable volumes are guided, a cam part 32 on which the expellers are supported, and having control means comprising a control cam 36 which has three kidney-shaped control slots 16, 17, 18 via which the expeller spaces can be successively connected to a supply port, to a working port and to a reservoir tank port (see col. 5, lines 13-16), wherein the control means can be controlled cyclically, in that a control cam 36 or the expeller part 28 can be driven in rotation by means of a drive 22, and in that of the two components comprising the expeller part 28 and cam part 32, one component can move freely with respect to the other component in terms of two rotational or translatory degrees of freedom within a limited range (see claim 1). Schaeffer further teaches that the control means can be controlled cyclically, in that a control cam 36 can be driven in rotation by means of a

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drive 22, and in that of the two components comprising the expeller part 28 and cam part 32, one component is arranged essentially fixedly with respect to the housing and the other component can move freely in terms of two rotational or translatory degrees of freedom within a limited range (see claim 1 or 8) and that the limits of the range within which the other component can move freely are variable.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the pump assembly of Ichiryu, by making the pump a vane pump and implementing three kidney-shaped control slots in order to connect the expeller spaces to a supply port, to a working port and to a reservoir tank port (Schaeffer, col. 5, lines 13-16).

10. Claims 27-31, 33, 35, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiryu 4,529,362 in view of Schaeffer 6,887,045 and in further view of Nagatomo 4,007,663.

Ichiryu in view of Schaeffer discloses the invention as discussed above, as well as the expeller part being driven in rotation by means of a drive and wherein the wobble plate can be entrained by the expeller part by means of axial pistons (Ichiryu, col. 2, line 2-21). However, Ichiryu in view of Schaeffer does not teach the following claimed limitations taught by Nagatomo.

Nagatomo teaches a hydraulic pump comprising an expeller part 2, in which a plurality of expellers 4 which bound expeller spaces with variable volumes are guided and a cam part 5 on which the expellers are supported. Nagatomo further teaches that axial pistons 4 which are located in the expeller part 2, and wherein the cam part 5 is a

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wobble plate which is mounted by means of a universal joint (see Fig. 1) with its center in the center of said wobble plate so as to be capable of pivoting on all sides and can be supported, at a distance from its center, on a stop (see left side of casing 8 in Fig. 1) in a rotational fashion. Nagatomo also teaches that the stop is steady in the direction of rotation of the wobble plate 5, and that an abutment between the wobble plate and the stop is linear (see Fig. 1). Nagatomo further teaches that the distance between the center and the rotating support point of the wobble plate 5 is equal to or larger than the distance between the center and the locations where the axial pistons 4 act on the wobble plate 5 (see Fig. 1). Nagatomo also discloses that the stop for the rotating support point of the wobble plate 5, is located on its rear side facing away from the axial pistons 4 (see Fig. 1) and that the stop for the wobble plate 5 is implemented by means of travel movement limitation for the axial pistons 4 (see Fig. 1). Nagatomo further teaches that the distance between the universal joint (see joint around center axis that supports 5) and the stop measured in the direction of the central axis of the expeller part 2 is variable.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the pump assembly of Ichiryu in view of Schaeffer, by implementing a stop for the wobble plate in order to limit the movement of the axial pistons in the expeller part (Nagatomo, Fig. 1).

11. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiryu 4,529,362, Schaeffer 6,887,045, and Nagatomo 4,007,663 in view of Dantlgraber 5,332,371.

Ichiryu and Schaeffer in view of Nagatomo disclose the invention as discussed above. However, Ichiryu and Schaeffer in view of Nagatomo do not teach the following claimed limitations taught by Dantlgraber.

Dantlgraber teaches a hydraulic system comprising an expeller part 19, axial pistons 20, and a wobble plate 18. Dantlgraber further teaches a stop for the rotating support point of the wobble plate 18 is located on its front side facing the axial pistons 20 (see col. 2, lines 18-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the pump assembly of Ichiryu and Schaeffer in view of Nagatomo, by implementing a stop for the wobble plate that faces the axial pistons in order to have a means for adjusting the angle of the swash plate (Dantlgraber, col. 2, lines 18-21).

12. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiryu 4,529,362, Schaeffer 6,887,045, and Nagatomo 4,007,663 in view of Welsh 3,319,874.

Ichiryu and Schaeffer in view of Nagatomo disclose the invention as discussed above. However, Ichiryu and Schaeffer in view of Nagatomo do not teach the following claimed limitations taught by Welsh.

Welsh teaches a variable displacement device comprising an expeller part 21, axial pistons 24, and a wobble plate 102. Welsh further teaches that the axial pistons 24 and the bores 23 of the expeller part 21 in which the axial pistons 24 are located have faces which correspond to one another, curve in a spherical or circular-cylindrical

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fashion, lie axially opposite one another and go into an abutting position against one another (see Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the pump assembly of Ichiryu and Schaeffer in view of Nagatomo, by making the surface of the pistons and the bores in which they move conform to one another in order to allow the pistons to close and open valves upon their movement within the bores (Welsh, col. 3, lines 63-70).

13. Claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiryu 4,529,362, Schaeffer 6,887,045, and Nagatomo 4,007,663, in view of Forster 6,663,354.

Ichiryu and Schaeffer in view of Nagatomo disclose the invention as discussed above, as well as the universal joint being a ball and socket joint. However, Ichiryu and Schaeffer in view of Nagatomo does not teach the following claimed limitations taught by Forster.

Forster teaches a hydrostatic axial piston machine comprising a wobble plate 7, an expeller part 1, and axial pistons 5. Forster further teaches that the wobble plate 7 comprises a spherical layer which contains a large circle and which is located so as to slide in a sealed fashion in a circular-cylindrical receptacle 8, and is supported in the expeller part 1, and wherein a hydraulic cushion, whose volume is variable, is located on the side of the wobble plate 7 facing away from the expeller part 1 (see col.1, lines 41-51). Forster also teaches that the wobble plate 7 is embodied as a spherical layer with an outer face, which lies on a spherical surface 8, and is held in a recess 8 with a

spherical bearing face. Forster further teaches that the recess 8 has a negative spherical layer, and in that the wobble plate 7 is supported on the stop (see ring element in Fig. 1 that sits just below 1 on the right side, it is also below another ring element which contacts the brake) on a side facing away from the expeller part 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the pump assembly of Ichiryu and Schaeffer in view of Nagatomo, by giving the wobble plate a spherical layer along with a spherical receiving surface in order to allow for easy adjustment of the cradle (Forster, col. 3, lines 25-29).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER J. BERTHEAUD whose telephone number is (571)272-3476. The examiner can normally be reached on M-F 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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